

A PORTABLE EXERCISE ASSEMBLY

BACKGROUND OF THE INVENTION

This is a continuation-in-part application of presently pending U.S. Patent application, serial number 09/477,951 filed on January 5, 2000, which is incorporated herein by reference.

Field of the Invention

The present invention relates to a portable exercise assembly comprising a base and/or mounting assembly each structured to be selectively oriented in either an operative position or a collapsed position and made from a strong light weight material which, when in their collapsed position, are capable of being easily hand carried from location to location and when in their operative position are structured, in cooperation with a plurality of associated operative components, to allow a user to perform a full range of exercises involving substantially all of the major muscle groups. A resistance assembly is provided to offer sufficient resistance to satisfy both the more dedicated, as well as the more casual exercise or work-out enthusiast.

DESCRIPTION OF THE RELATED ART

In recent years there has been an ever increasing tendency for the general population to follow a healthier life style.

Such an improved life style frequently incorporates a somewhat restricted low fat diet in addition to an increased amount of physical activity, in the form of exercise. Typically, an exercise regimen followed by most individuals seriously concerned with the improvement of their overall well-being and body fitness, comprises cardiovascular type exercises as well as exercises directed to the development of specific muscle groups. In the latter category, there has been a proliferation of a variety of different types of exercise devices and/or apparatus, which facilitate the performance of a specific exercise, dependent on which portion of the body or which specific muscle group a person wishes to exercise and/or develop.

Known exercise devices of the type set forth above typically include one or more resistance elements, such as but not limited to springs, flexible material bows, weights, etc. which are connected to a plurality of attachment members and/or platforms removably securable to certain portions of a person's body. Such known structures thereby allow the performance of one or more exercises in a manner which hopefully will provide the most benefit to the muscle grouping being exercised. In addition, as part of certain known or conventional exercise assemblies, the utilization of substantially large and somewhat fixed apparatus are sometimes required. Generally, such apparatus includes some type of support platform on which a user is positioned. The support platform is then oriented at a

1 preferred angular orientation relative to a floor, ground or
2 other support surface. The platform thereby supports and serves
3 to orient a portion of the user's body in a position which
4 facilitates movement of the user's body or a particular muscle
5 group in an intended position to best accomplish the desired
6 exercise.

7 While platforms and their associated support frames of the
8 type set forth above are used in a variety of different exercise
9 assemblies, for the performance of certain specified exercises,
10 there are generally recognized disadvantages associated with
11 such apparatus. Such disadvantages are typically associated
12 with, but are not necessarily limited to size, weight, and to a
13 certain extent, instability. Instability is a recognized
14 disadvantage or even possible danger, particularly with exercise
15 apparatus which supports the body engaging platform in a raised
16 location above the ground, floor or other support surface on
17 which such apparatus is normally positioned.

18 The recognized disadvantages associated with size and
19 weight result in the inability of those utilizing such exercise
20 equipment to travel with or easily re-locate a preferred
21 exercise apparatus. This problem is particularly understood by
22 "body builders" or those individuals who train and/or exercise
23 on a regular or strictly scheduled basis. By way of example,
24 one often finds that in a motel or hotel, there is no spa or
25 gymnasium facility available. On the other hand, when such

physical exercise facilities are available, they are frequently operated only during somewhat limited hours of use, which prevents utilization of such facilities, except during conventional hours. Such conventional periods of usage is often inconvenient for those traveling on business, since business hours are usually spent away from the hotel and the affiliated gymnasium or exercise equipment. In addition, to the above, it is not uncommon for a "body builder" to prefer to workout in a certain amount of privacy or isolation, which is difficult, if not impossible, when using a public or semi-public facility, such as a gymnasium, hotel spa, etc.

Those associated with the design and manufacture of exercise equipment have recognized many of the types of disadvantages associated with the size and weight of existing equipment. As a result, most sporting goods stores offer a relatively large choice of "body toners" and other exercise devices, which are portable, but which may be somewhat limited in the types of exercise and amount of resistance available while utilizing such equipment. For example, one device may allow for the performance of certain upper body exercises but be devoid of any type of equipment which will allow the performance of meaningful lower body exercises. A body builder or other individual seriously interested in the development of the overall body, rather than being content with the development of a certain specific muscle group, must acquire one machine for a

1 specific exercise or group of exercises and another machine for
2 other exercises. In addition, known portable machines, will
3 usually be very limited in the amount of resistance available to
4 the body builder when performing his exercise. This of course
5 is important due to the fact that a relatively significant
6 amount of resistance is usually required by an individual having
7 the various muscle groups being highly developed.

8 Accordingly, there is a need for exercise equipment which
9 is sufficiently lightweight and compact to be portable and
therefore be easily carried by a user between different
locations. Such a preferred exercise assembly should also be
designed to facilitate positioning and set-up, at either the
home or place of business and also be of sufficiently small
size, when hand carried to an airport, to be acceptable as "free
allowed check in baggage". In addition, such improved exercise
equipment or apparatus should be specifically structured to have
sufficient versatility to perform substantially all of the basic
and most important exercises for body builders or the more
conscientious exercise enthusiast. Such basic exercises may
include, but are not necessarily limited to, leg presses, leg
extensions, alternate leg curls, bench press/dips, pull-ups,
military press, rowing movement, arm curls, triceps extensions,
alternate hamstring flexes, sit-ups, etc. Also a major
importance in such an improved exercise assembly is the
providing of a sufficient amount of resistance, through both the

utilization and placement of a plurality of resistance members, to offer sufficient resistance to the more sophisticated exercise enthusiast to satisfy the requirements for sufficient and continued development of the various muscle groups of the body. Accordingly, an improved exercise assembly of the type referred to herein should have a resistance range from substantially ten pound (10 lb.) to in excess of approximately one hundred fifty pounds (150 lb.) and further should be structured to allow the incremental variance in change in at least ten pound (10 lb.) increments. Finally, such an improved exercise assembly should operate on a smooth, almost effortless basis, and accurately direct the resulting resistance or stress only to the intended muscle groupings.

SUMMARY OF THE INVENTION

The present invention is directed towards a portable, light weight exercise assembly designed to facilitate the performance of a full range of body exercises in order to provide the desired exercise and resistance or stress to substantially all the major muscle groups of the body. In addition, the exercise assembly of the present invention and its associated components, offer sufficient resistance, when performing the above noted exercises, to satisfy the more sophisticated or dedicated exercise enthusiast, as well as the more casual user of exercise equipment.

1 More specifically, the portable exercise assembly of the
2 present invention includes a base comprising a plurality of base
3 segments selectively disposable relative to one another into
4 either an operative position or a stored, collapsed position.
5 In a first embodiment, the plurality of base segments comprise
6 two base segments, each having an elongated configuration,
7 wherein the operative position of the base is defined by the two
8 base segments disposed in an end to end orientation. The
9 aforementioned stored position is defined by the two base
10 segments disposed in a collectively folded, overlying and
11 substantially parallel relation to one another. The two base
12 segments are disposable in either of the above noted positions
13 due to the fact that correspondingly positioned ends thereof are
14 hingedly or otherwise movably interconnected, so as to allow the
15 selective orientation of the two base segments between the
16 operative and stored positions.

17 The base of this first embodiment comprises a track
18 assembly extending along at least a majority of the length
19 thereof and being defined by each of said two base segments
20 including two spaced apart beams, disposed in parallel relation
21 to one another, and being separated along their respective
22 length, by a channel. When the two base segments are disposed
23 in the operative position, the channel and two beams of each
24 base segment are disposed in an aligned, substantially parallel
25 orientation relative to one another.

1 The base further comprises a first platform removably
2 secured at any one of a plurality of positions along the length
3 of the base, when in its operative position. The first platform
4 is disposed and structured to engage and support different
5 portions of the user's body, depending upon the particular
6 exercise being performed. To this end, the first platform is
7 preferably of sufficient length and width to provide adequate
8 support and stability to various frontal and rear portions of
9 the user's body, when performing the various exercises. An
10 under-portion of the first platform is cooperatively structured
11 with the aforementioned track assembly, such that the first
12 platform can be removably secured to an outer exposed surface of
13 the base, when in its operative position, and along the length
14 thereof.

15 A trolley, may used as an optional component and is
16 removably secured to the base and cooperatively structured with
17 the track assembly so as to be slidable or otherwise movable
18 along the length thereof. When the trolley is used, it is
19 structured to supportingly engage, as well as possibly supply
20 resistance to, the feet and/or lower legs of the user during the
21 performance of certain exercises.

22 As an alternative embodiment to the trolley, the exercise
23 assembly of the present invention includes an elongated bar,
24 which may be removably connected to one or more of a plurality
25 of elastic resistance elements. The elongated bar may further

1 include two spaced apart foot cushions each associated with a
2 foot restraining strap. The feet of the user pass between the
3 strap and the respective foot cushion, such that the bottom of
4 the foot engages the foot cushion for purposes of comfort when
5 the feet apply resistance against the bar and the upper or top
6 portion of the foot engages the under portion of the restraining
7 straps.

8 Another embodiment of the present invention comprises a
9 base formed from a plurality of elongated segments removably
10 attached to one another in an end-to-end relation, wherein each
11 of the segments comprise a true linear configuration. More
12 specifically, each of the elongated linear segments of this
13 embodiment of the exercise assembly of the present invention is
14 preferably formed from a high strength, relatively light weight
15 material having a tubular construction. By way of example, each
16 of the base segments could be formed of a metallic material
17 tubing, having a square or multi-sided, cross-sectional
18 configuration, which defines the aforementioned tubular
19 construction. The base, when in its operative position defined
20 by the plurality of segments attached in an end-to-end
21 orientation, also has a true linear configuration along at least
22 the majority of its length. However, at least one of the
23 plurality of base segments includes an enlarged portion
24 extending laterally outward from a central, longitudinal access
25 of the base. The enlarged portion is more particularly defined

1 by a frame disposed in at least partially surrounding relation
2 to a central opening. This enlarged portion serves to provide
3 stability to the base when the base is disposed on a supporting,
4 normally horizontally oriented surface, such as the floor or the
5 like. In addition, the enlarged portion may provide support or
6 attachment for a platform or cushion structure, disposable on
7 the base, in overlying or attached relation to the enlarged
8 portion, so as to support at least a portion of the user's body
9 thereon. A restraining assembly, preferably in the form of two
10 outstanding posts or stanchions, is removably secured to the
11 base, substantially adjacent to the enlarged portion. The
12 restraining posts are disposed and structured to engage and
13 provide at least some, minimal resistance to various portions of
14 the user's body while, the user performs exercises utilizing one
15 or more elastic resistance elements, as described in greater
16 detail hereinafter.

17 Yet another embodiment of the present invention may be
18 generally referred to as a "mini" exercise assembly and includes
19 a mounting assembly structured to be removably attached in
20 supported engagement on an upright, substantially vertically
21 oriented supporting structure, such as but not limited to a
22 door. Utilization of the mounting assembly in this manner
23 negates the necessity of utilizing either of the aforementioned
24 embodiments of the base in that an elastic resistance assembly
25 is removably secured to one or more of a plurality of mounts,

1 removably secured to the door or like supporting structure. More
2 specifically, each of the mounts are structured to engage
3 predetermined portions of the supporting door or other
4 supporting structure, such as along the upper and lower
5 peripheral edges thereof. A gripping assembly is associated
6 with this embodiment, as well as the other embodiments of the
7 exercise assembly of the present invention and includes a
8 plurality of retaining straps or like structures, which are
9 removably attached to various portions of the user's body, such
as the feet, ankles, hands, etc.

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In each of the above set forth embodiments, the gripping assembly may be utilized so as to be gripped or otherwise similarly engaged by the hands or feet of the user for purposes of selectively positioning the resistance assembly between the aforementioned "stressed" position and the "non-stressed" position. In addition to the restraining straps or like structures as set forth above, the gripping assembly may include one or more, somewhat similarly structured, gripping bars removably attached to one end of the resistance assembly. Also two of the gripping bars may be used in combination with one another by connecting each of the bars to an opposite end of the resistance assembly. The versatility of the structure of the gripping assembly is such that its utilization with any of the embodiments of the base and/or the mounting assembly, may or may be not be incorporated into the performance of the various

1 exercises, primarily dependent on the desires of the user and/or
2 the muscle groups intended to be exercised.

3 As in the majority of modern day exercise equipment, the
4 exercise assembly of the present invention incorporates a
5 resistance assembly. The resistance assembly of the present
6 invention comprises, a plurality of elongated resistance
7 elements, each of which are formed from an elastic material.
8 Each of the resistance elements, when extended from a normal or
9 relaxed position to an outwardly extended, stressed position,
10 provides an intended or designated amount of resistance. The
11 amount of resistance capable of being provided by the resistance
12 assembly will depend upon the number of individual resistance
13 elements being utilized at one time in the performance of
14 individual ones of the plurality of exercises. Naturally, the
15 location at which the resistance elements are attached to the
16 base, mounting assembly and/or gripping assembly, as well as the
17 number of resistance elements being utilized, is again dependent
18 upon the particular exercise being performed and the particular
19 muscle grouping being stressed.

20 Therefore, the various embodiments of the portable,
21 exercise assembly of the present invention, are each structured
22 to provide a complete body workout for body builders, as well as
23 casual users of exercise equipment. Also, because of the
24 ability to selectively position the base between the
25 aforementioned stored position and operative position or

1 otherwise at least partially disassemble the various components
2 of the exercise assembly, it is capable of being easily hand
3 carried from location to location. Further, the structure of
4 the operative components associated with the exercise assembly
5 emphasizes and facilitates the ability of a user to perform all
6 exercises which work most if not all of the major muscle groups.
7 Such exercises include, but are not necessarily limited to: leg
8 presses, leg extensions, alternate leg curls, bench
9 presses/dips, pull-ups, military presses, rowing motion, arm
10 curls, triceps extensions, alternate hamstring flexes, and sit-
11 ups. Of course, the aforementioned listing of exercises is not
12 meant to be inclusive of all the different types of exercises
13 capable of being performed. To the contrary the aforementioned
14 exercises are intended to be representative only of a large
15 number of different exercises. The portable, exercise assembly
16 of the present invention can also be used to perform a variety
17 of other exercises which may be individualized or customized by
18 the user for purposes of working parts of the body not
19 necessarily associated with the major muscle groups.

20 These and other features of the present invention will
21 become more clear when the drawings as well as the detailed
22 description are taken into consideration.

23

24 BRIEF DESCRIPTION OF THE DRAWINGS

25 For a fuller understanding of the nature of the present

1 invention, reference should be had to the following detailed
2 description taken in connection with the accompanying drawings
3 in which:

4 Figure 1 is side view of an exercise assembly of the
5 present invention in an operative position.

6 Figure 2 is a side view of the embodiment of the exercise
7 assembly of Figure 1 shown in a stored position.

8 Figure 3 is a top view of the embodiment of Figure 1.

9 Figure 4 is a bottom view of the embodiment of Figure 3.

10 Figure 5 is a front view of a plurality of resistance
11 elements which collectively define a resistance assembly of the
12 exercise assembly of the present invention.

13 Figure 6 is an elongated bar which may be used as a
14 gripping bar or alternatively may be used to engage the feet of
15 the user and therefore includes foot cushions with associated
16 retaining strap.

17 Figure 7 is an end view, in detail, of a component of the
18 embodiment of Figure 1.

19 Figure 8 is a connector structure associated with the
20 embodiment of Figure 7.

21 Figure 9 is an additional structural feature associated
22 with the embodiment of Figure 7.

23 Figure 10, 10A; 11, 11A; 12, 12A; 13, 13A; 14, 14A; and 15,
24 15A are each top schematic views showing the exercise assembly
25 of the present invention in combination with a user performing

1 a variety of different exercises.

2 Figure 16 is a top view of another embodiment of the
3 resistance assembly of the present invention including a
4 gripping bar, other than that shown in Figure 6.

5 Figure 17 is a front view of an elongated gripping bar,
6 differing from the embodiments of Figures 6 and 16, which may or
7 may not be used with a second gripping bar and which is capable
8 of being gripped by the hands or engaged by the feet of the
9 user.

10 Figure 18 is a top view of another embodiment of a base of
11 an exercise assembly of the present invention differing from the
12 embodiment of Figures 3 and 4.

13 Figure 19 is a perspective view of a composite of various
14 components of the base of the embodiment of Figure 18 shown in
15 disassembled form.

16 Figure 20 is a top view of the base of the embodiment of
17 the Figure 19 shown in an operative position with a user
18 exerting a force on a resistance assembly associated with the
19 exercise assembly of the present invention.

20 Figures 21 through 24 are each perspective views of a user
21 demonstrating the performance of a plurality of different
22 exercises utilizing the base of the embodiment of Figure 18.

23 Figure 25 is yet another embodiment of the exercise
24 assembly of the present invention shown in its operative
25 position mounted on an upright, substantially vertically

1 oriented supporting structure.

2 Figure 26 is a portion of a gripping assembly associated
3 with the embodiment of Figure 25.

4 Figure 27 is a front view of a mount associated with the
5 embodiment of Figure 25.

6 Figure 28 is a front view of a pad associated with the
7 embodiment of Figure 27.

8 Figure 29 is a perspective view of another embodiment of a
9 mount associated with the embodiment of Figure 25.

10 Figure 30 is a pad associated with a retaining structure
11 shown in Figure 31.

12 Figure 31 is a front view of a retaining structure
13 removably attachable to various portions of the user's body.

14 Figure 32 is a composite view of a pair of handles of a
15 gripping assembly used with the embodiment of the exercise
16 assembly of Figure 25.

17 Figure 33 is a perspective view of a cushion which may be
18 used in the performance of exercises utilizing the embodiment of
19 Figure 25.

20 Like reference numerals refer to like parts throughout the
21 several views of the drawings.

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23 DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENT

24 The present invention relates to a portable exercise
25 assembly which, in the embodiments of Figures 1 through 15, 15A,

1 is generally indicated as 10 and includes a base 12 designed to
2 be supported on a floor or any other applicable supporting
3 surface, generally but not necessarily, in a substantially
4 horizontal orientation. The base 12 is capable of being
5 selectively oriented in either an operative position, as shown
6 in Figures 1, 3 and 4 or a stored position, as shown in Figure
7 2.

8 More specifically, the base 10 comprises a plurality of
9 base segments which, in the embodiment of Figure 1, preferably
10 includes two base segments 14 and 16 each having a substantially
11 elongated, preferably straight line configuration and which are
12 movably connected to one another by one or more hinge structures
13 18, or other applicable, movably interconnecting, structures.
14 The hinge structures 18 allow the selected positioning of the
15 base segments 14 and 16 relative to one another so that the base
16 segments 14 and 16 may assume either the operative position of
17 Figure 1 or the stored position of Figure 2. The operative
18 position comprises both of the elongated base segments 14 and 16
19 disposed in an end-to-end relation to one another, such that the
20 correspondingly positioned ends 14' and 16' of each base
21 segments 14 and 16 respectively, are disposed in immediately
22 adjacent or contiguous relation to one another. Accordingly,
23 when in the operative position, the entire base 12 assumes an
24 elongated, configuration.

25 The length of each segment 14 and 16 may vary and may or

1 may not be substantially equal to one another. However, in the
2 illustrated embodiment, the overall dimension and configuration
3 of the base 12 is preferably such as to accommodate the
4 supporting engagement with at least a portion of the user's
5 body, dependent upon the exercise being performed, as best shown
6 and more fully explained with reference to Figure 10, 10A
7 through 15, 15A.

8 With primary reference to Figures 3 and 4, each base
9 segment 14 and 16 may comprise two elongated, spaced apart beams
10 20 and 21, which are secured to one another, in at least one
11 embodiment, in substantially parallel relation by end braces 22.
12 Other brace structures may be used to interconnect the
13 respective beams 20 and 21 of each of the base segments 14 and
14 16 in a manner which does not interfere with the utilization of
15 the exercise assembly 10 or the performance of various exercises
16 thereon. Accordingly, the structural configuration of each base
17 segment 14 and 16, which incorporates the spaced apart beams 20
18 and 21, serves to define a track assembly for the removable
19 mounting and/or moveable positioning of a first platform 26 and
20 a second platform 28, or elongated gripping bar 101 (See Figure
21 17) thereon. More specifically, the track assembly comprises a
22 channel 25 formed between each of the beams 20 and 21 of each
23 base segment 14 and 16. The channel 25 communicates with the
24 upper, exposed surface 15 of the base 12 as best shown in Figure
25 3. Similarly, as shown in Figure 4, the elongated channel 25 of

each base segment 14 and 16 may also extend in communicating relation with and through the under surface 17 of the base 12 as shown in Figure 4. When the base 12 is in its operative position, the respective elongated channels 25 of each base segment 14 and 16 are disposed in aligned relation to one another, such that the channels 25 collectively extend along substantially the entire length, or at least a majority of the length, of the base 12. The width or transverse dimension of each of the channels 25 is sufficient to receive a mounting bracket 26' and 28', as best shown in Figures 1 and 7 respectively, for the removable mounting and sliding travel or positioning, of the first and second platforms 26 and 28, respectively.

As is apparent from the accompanying Figures, the first platform 26 and the second platform 28 may vary in size and locations along the length of the base 12. The first platform 26 is of a sufficient dimension and configuration to provide stable support for either a front or rear portion of the user's body, so as to facilitate proper orientation of a user while performing each of a plurality of different exercises. The second platform 28 may be an optional component and included in at least one embodiment. When utilized, the second platform 28 comprises a portion of a trolley assembly generally indicated as 30. The trolley assembly 30 includes a support frame 32 which may have a feet engaging portion 34, removably or fixedly

1 secured thereto, so as to engage the feet or lower legs and
2 offer resistance for example, when performing leg presses. The
3 feet engaging portion 34 and support frame 32 may be removed
4 from the second platform 28 and the second platform 28 may be
5 used for attachment to a portion of a resistance assembly 70 or
6 70', to be described in greater detail hereinafter with
7 reference to Figures 5 and 16. Further, the mounting bracket
8 28' of the trolley assembly 30 is dimensioned and configured to
9 slide along the length of respective ones of the channels 25,
10 disposed between the beams 20 and 21, of one or both of the base
11 segments 14 or 16. In order that the feet, ankles or other
12 portions of the user's body may be secured to the platform 28
13 and/or feet engaging portion 34, a retaining strap 40 may be
14 mounted on the feet engaging portion 34 by means of connecting
15 apertures 42. Alternatively, foot and/or ankle straps,
16 preferably having a loop or annular configuration and generally
17 indicated as 44, may be secured to the platform 28 so as to
18 temporarily anchor or secure the foot or ankle to the second
19 platform 28, or various other portions of the base 12.

20 As an alternative to the trolley assembly 30 and
21 specifically the second platform 28, the exercise assembly of
22 the present invention further contemplates the use of an
23 elongated gripping bar of the type generally indicated as 80 in
24 Figure 6 and 17. Gripping bar 80 includes two, spaced apart
25 cushions 103 each having a foot and/or ankle restraining strap

1 89 mounted in spaced apart but cooperative relation thereto.
2 The gripping bar 80 is dimensioned and configured to move
3 relative to the support frame and along the length of either of
4 or the base segments 14 and 16, such as by sliding over exposed
5 surfaces of beams 20 and 21. Another embodiment of the griping
6 bar is indicated as 80' and shown in Figure 16. The elongated
7 gripping bar 80' is designed to be removably attached to a
8 resistance assembly comprising one or more resistance elements,
9 using rings 85 and oppositely disposed retaining pins 86 as
10 shown. As an alternative, either of the gripping bars 80 as
11 shown in Figure 6 or 80' as shown in Figure 16 can be
12 substituted for the gripping bar 101 shown in Figure 17,
13 dependent upon the particular exercise intended to be performed
14 by a user and also on whether the user intends to grip a
15 particular gripping bar with his or her hands and/or engage the
16 gripping bar with his or her feet. Regardless of the embodiment
17 utilized, as will be explained in greater detail hereinafter,
18 the gripping bar 80, 80' and 101 are structured to define a
19 gripping assembly, wherein the various gripping bars are
20 intended to be engaged or otherwise "gripped" by various
21 portions of the user's body, including the hands, ankle, feet,
22 etc. Each of the gripping bars are removably connected to the
23 resistance assembly 70 in a manner which allows the selective
24 positioning or movement of the resistance assembly 70 between a
25 stressed position and a non-stressed position.

1 Also with reference to Figures 3 and 4, it should be noted
2 that in the embodiment of Figure 3 a plurality of connectors 90
3 primarily in the form of eyebolts may be removably inserted into
4 the sides of either of the beams 20 and 21 and attached at any
5 number of locations along the base segments 14 and 16. The
6 connectors 90 are used to attach one end of one or more elastic
7 resistance elements which define part of the resistance assembly
8 70, as will be described in greater detail hereinafter. As an
9 alternative embodiment another means of connecting a plurality
10 of elastic resistance elements 72, 73, 75, etc. defining the
11 resistance assembly 70, to the base segments 14 and 16 includes
12 the provision of an elongated slide bar 120 disposed in
13 transverse relation and in interconnected engagement with each
14 of beams 20 and 21. The slide bar 120 includes a plurality of
15 apertures 125 disposed in spaced relation to one another and
16 extending along each end. The apertures 125 are used to connect
17 a plurality of elastic resistance elements 72, 73, 75 to the
18 slide bar 120 in spaced relation to one another. The slide bar
19 120 can be positioned at various locations along the length of
20 the base segments 14 and 16 and interconnecting somewhat
21 transverse relation to the beams 20 and 21 through the provision
22 of aligned pairs of elongated slots 122. The slots 122 may be
23 disposed in spaced relation to one another and at various
24 locations along the entire length of either of the base segments
25 14 and 16. Other structural components associated with the

1 exercise assembly 10 of the present invention include a shoulder
2 restraint 50 comprising two elongated dowels 53 each having one
3 end at least partially surrounded by a padding 55 and the
4 opposite end 53' dimensioned and configured to fit within
5 appropriately disposed apertures 57 formed at a plurality of
6 different locations along the length of each of the base
7 segments 14 and 16. The apertures 57 are dimensioned to be at
8 least minimally greater than the transverse dimension of the
9 opposite end 53' of the dowels 53. In addition, a head rest 54
10 may be removably secured to the base 12 at various locations
11 along the length thereof, so as to extend upwardly and outwardly
12 from the upper exposed surface 15 in an orientation to support
13 the head of a user. The head rest 54 is frequently, but not
14 exclusively, used when the shoulders of the user are disposed in
15 engagement with the shoulder restraint 50, as clearly shown in
16 Figures 10, 10A. In addition to the above, a stability
17 structure is provided in the form of grips 60 which include an
18 elongated pin 62, dimensioned to be removably inserted within
19 appropriate openings or apertures 64, preferably formed at one
20 or more locations along the side of the base 12. The opposite
21 ends of pins 62 may include a grip structure 66 disposed and
22 configured to facilitate the gripping thereof by the user, when
23 the user is performing certain exercises.

24 Another feature of the present invention is shown in
25 different embodiments, in Figures 5, 16 and 17, comprises the

resistance assembly generally indicated as 70. In the embodiment of Figure 5, the resistance assembly 70 comprises a plurality of elongated resistance elements 72, 73, and 75 each formed of an elastic material and normally disposed in a relaxed non-stressed position, as represented. However, upon stretching or extending each of the resistance elements 72, 73, and 75, a predetermined resistance will be provided such as when a first end 76 of each of the resistance elements is anchored or otherwise removably connected to the base, by means of one of a plurality of connectors 90 or the aforementioned slide bar 120. The connectors 90 may assume a variety of structural configurations, such as an annulus or ring formed on an exposed end thereof. The opposite end 78 of each of the resistance elements 72, 73, and 75 is connected to a gripping assembly including one of a plurality of gripping bars 80, 80' and/or 101 dependent upon the various exercises being performed. Typically, the resistance assembly 70, as shown in Figure 5, comes in two sets, wherein each set comprises an equal number, which of course may vary, of resistance elements 72, 73, and 75, so as to provide a balanced or symmetrical resistance when performing the various exercises. Obviously one or more of the resistance elements 72, 73, and 75 may be used at the same time and each of the various resistance elements may be structured to offer a different amount or degree of resistance. More specifically, the individual ones of the resistance elements 72,

1 73, and 75 may be structured to provide a different resistance
2 when extended from their non-stressed to their stressed or
3 stretched orientation. As indicated in Figure 5 and by way of
4 example, the various resistance elements 72, 73, and 75, may be
5 specifically structured to provide a resistance of fifteen
6 pounds (15 lb.), thirty pounds (30 lb.) and sixty pounds (60
7 lb.), respectively. Also it should be noted that each of the
8 opposite first and second ends 76 and 78 may each include a
9 snap-type connector 79 or a connecting ring as at 81.

10 The embodiments of Figures 16 and 17 disclose a structural
11 variation of the resistance assembly 70, therein indicated as
12 70' and comprising a plurality of resistance elements 72', 73'
13 and 75', as well as an additional element 77, each being formed
14 of an elastic material and offering a different or equal amount
15 or resistance when forced from a normally non-stressed position,
16 as shown in Figure 16, to a stressed or stretched position (not
17 shown). In the embodiment of Figure 16, the gripping bar 80'
18 may be used when the user engages gripping bar 80' with his
19 hands. In the embodiment of Figure 17, the gripping bar 101 is
20 intended to be engaged by the feet and/or ankles by the user,
21 which engage the cushions 103' and are removably secured in
22 engagement with the gripping bar 101 through the retaining
23 straps 105. When utilizing either of the bars 80' or 101, the
24 resistance assembly 70' is removably attached thereto. More
25 specifically, the connectors 85 are secured in the position

1 shown in Figure 16 and 17 by correspondingly disposed spaced
2 apart locking pins 86. The opposite ends of each of the
3 resistance elements 72', 73', 75' and 77 are fixedly secured to
4 one another as at 87, and the collectively secured ends 87 may
5 be attached to the base 12 and/or other anchoring structure by
6 adjustable and removably connected chain members 88. When it is
7 desired to remove one or more of the resistance elements, such
8 as resistance element 77, in order to lessen or otherwise vary
9 the resistance, when the connector ring 85, associated with the
10 resistance element 77, is removed from the gripping bar 80'.
11 Once detached, the connector ring 85 remains detached or is
12 otherwise retained by the chain 88 in the area of the
13 collectively secured ends 87 of the resistance elements as
14 shown. This eliminates the need and necessity of connecting or
15 disconnecting each of the opposite ends 76 and 78 of the
16 individual resistance elements 72, 73, and 75, of the embodiment
17 of Figure 5. As shown, in the embodiment of Figure 16 the
18 resistance assembly 70' may be connected by the adjustment chain
19 88 and quick release snap-type connector 88' to the base 12 by
20 means of eyebolt connectors 90. However, in the embodiment of
21 Figure 17, the resistance assembly 70' may be connected between
22 gripping bar 80 and gripping bar 101, both of which are engaged
23 by different portions of the user's body such that the
24 resistance assembly 70', including the plurality of resistance
25 element 72', 73', 75' and 70' are repeatedly disposed between

1 their stressed position and non-stressed position. Further,
2 depending upon the orientation of the user, a head rest as at
3 54' may be utilized to support the head or neck area of the
4 user.

5 With reference to Figures 10, 10A through 15, 15A, a user
6 is schematically represented on the exercise assembly 10 in the
7 performance of a variety of exercises. It is emphasized that
8 while the structural embodiments of the exercise assembly 10 are
9 represented as using the aforementioned connectors 90, the slide
10 bar 120 could be substituted for connectors 90, where
11 applicable. It is further emphasized that the exercises
12 schematically represented in Figures 10, 10A through 15, 15A are
13 representative only, of some of the numerous exercises that may
14 be performed utilizing the exercise assembly 10 of the present
15 invention. More specifically, in Figures 10, 10A a user 100
16 exerts a downward force on the gripping bar 80 as one or more of
17 the resistance elements of the resistance assembly 70 are
18 connected by the aforementioned connectors 90 to an upper end or
19 portion of the base 12. Further, during this exercise the
20 shoulder restraint 50 serves to anchor and stabilize the
21 position of the user 100, while his head may be further
22 supported by the head cushion 54.

23 Figure 11 and 11A show the orientation of the user 100
24 holding the gripping bar 80 and having his feet anchored or
25 stabilized as they engage the second platform 28 and or the

1 trolley assembly. The resistance assembly 70 is interconnected
2 between connectors 90 located at the opposite ends of the base
3 12, relative to their position in Figures 10, 10A. Figures 12
4 and 12A have the user 100 arranged in a substantially identical
5 orientation to that of Figures 11, 11A, wherein the user serves
6 to exert a force on the gripping bar 80, which may be more
7 specifically defined as a pull-up. Again it is shown that the
8 resistance assembly 70 is anchored at the end of the base 12 as
9 the feet of the user 100 are secured or stabilized by the second
platform 28.

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Figures 13 and 13A represent the user 100 performing alternate hamstring flexes, as the resistance assembly 70 is secured at one end to the base 12 by connectors 90. Their opposite ends are secured to the feet or ankle portions of the user 100, utilizing straps 44, as discussed above and disclosed in Figure 9. Also during the performance of this exercise the hand grips 60 are utilized to provide additional stability in the orientation or positioning of the user 100 in performing this exercise. Although not specifically shown, a variation of the exercise as shown in Figures 13 and 13A may be performed utilizing the elongated bar 80 of Figure 6 rather than the individual foot restraining loops 44 attached to the feet of the user as represented. When using the bar 80 or a structural modification thereof, the user's feet can be fitted between the foot cushions 87 and the respective restraining straps 89, such

1 that the elastic resistance element 70 are secured to the
2 connectors 90' shown in Figure 6.

3 Figure 14 and 14A shows the user 100 performing alternate
4 leg curls, wherein the feet of the user 100 are secured to one
5 end of the resistance assembly 70 and the opposite ends thereof
6 are secured to spaced apart portions of the base 12 by
7 connectors 90. The shoulder restraint 50 is utilized to further
8 stabilize the position or orientation of the user 100 during the
9 performance of the aforementioned exercise. Further, as yet
10 another alternative embodiment, the exercise assembly 10 allows
11 the user to perform "upright" leg curls rather than the
12 alternate leg curls as set forth above. When performing the
13 upright leg curls, the heels of the user are effectively locked
14 underneath or in grippingly engagement with an elongated bar of
15 the type either shown in Figures 6 of 16. In practice, the heels
16 of the user engage the bar 80, and the user is reclined on his
17 or her back. The feet, along with the bar 80 having the
18 resistance elements attached thereto, are moved towards the
19 torso of the user, such that the knee extends upwardly from the
20 base segments 14 and 16.

21 Figures 15 and 15A shows the user 100 performing a sit-up
22 type exercise, wherein the feet and/or ankles are stabilized by
23 means of the strap 44, secured to the second platform 28 while
24 the user's back is engaged and supported by the first platform
25 26.

As shown in Figure 18 through 24, the exercise assembly of the present invention comprises another embodiment which includes a base generally indicated as 110 having a substantially linear configuration along a majority of its length. More specifically, the base 110 comprises a plurality of elongated segments 112, 114, and 116, each having a substantially linear configuration extending along a majority of their respective lengths, wherein the base segments 112, 114, and 116 are selectively separable as shown in the composite view of Figure 19 or are removably attached in an end-to-end, coaxial relation to one another as shown in Figure 18 and 20. Each of the base segments 112, 114, and 116 are formed from a high strength, substantially light weight material which preferably include a tubular construction. Therefore, the transverse dimension of the various base segment 112, 114, and 116 may vary such that they may be telescopically interconnected to one another at their correspondingly position ends. In addition, mounting brackets as at 118 may be removably secured to the base 110 along its length and to any or all of the base segments 112, 114 and 116. As further demonstrated in Figure 20 the connecting brackets 118 are used to removably attach the various elastic, resistance elements of the resistance assembly 70' to various portions or locations along the length of the base 110.

The base 110 and particularly at least one of the plurality of segments such as base segment 116 includes an enlarged

1 section 130. The enlarged section is at least partially
2 defined by a frame 12 which is integrally or otherwise fixedly
3 secured to the remainder of the base segment 116 and which also
4 preferably includes the aforementioned tubular construction. The
5 frame 132 is disposed in at least partially surrounding relation
6 to a central opening 134. In addition by virtue of its
7 configuration, the frame 132 extends laterally outward from both
8 sides of the base 110 such that the central opening 134 is
9 sufficiently dimensioned to add stability to the base 110, such
as when it is in the operative position shown in Figures 20 and
10 22 through 24. In addition, the dimension of the central
11 opening 134 should be sufficient to allow a portion of a user's
12 body, such as the user's head to extend therethrough, as
13 demonstrated in Figure 21, in order to facilitate the user
14 performing a "bench press" exercise while remaining in a
15 substantially upright, sitting position. In addition, the
16 enlarge portion 132, may also be used as a support structure for
17 a pad or platform (not shown) on which a portion of the user's
18 body 100 is positioned, while performing the various exercises
19 as at least partially demonstrated in Figures 20, 23, and 24.

20 Other structural features of the base as shown in Figures
21 18 through 24 include the provision of a restraining assembly at
22 least partially defined by one or more upstanding posts or
23 stanchions 136, removably or fixedly connected to the base 110
24 substantially adjacent to the enlarged portion 130. In the
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1 embodiment of Figure 19 the restraining posts 136 are secured
2 directly to the frame 132. In addition, elongated pads or
3 cushions 138 may be provided so as to be removably attached in
4 overlying, covering relation to the posts 136 so as to provide
5 additional comfort to the user. As shown in Figures 20, 23, and
6 24 the posts 136 may engage and at least partially restrain
7 different portions of the user's body, such as the shoulders
8 (Figures 20 and 23) and/or the legs or thigh areas (Figure 24).
9 Also as demonstrated in Figure 22, the posts 136 may be engaged
10 by the feet of the user 100 as the user 100 exerts a pulling
11 force on the resistance assembly 70', by means of a gripping bar
12 101.

13 The exercise assembly of the present invention further
14 includes yet another embodiment as shown in Figures 25 through
15 31 and which may be generally referred to as a "mini assembly"
16 in that various structural components comprising this embodiment
17 can be utilized without the need of either base 10 or 110 as
18 described above. Further, the "mini assembly" further
19 emphasizes the versatility and portable nature of the exercise
20 assembly of the present invention, by virtue of it being easily
21 and efficiently transported by being hand carried or by being
22 carried in some type of kit or container which is supported on
23 the user's body when being transported.

24 More specifically, the embodiment of Figures 25 through 31
25 comprises a mounting assembly generally indicated as 140 and

1 comprising a plurality of mounts 142 and 144 respectively
2 structure to removably engage and be supported on and upright
3 supporting structure 150 such as a door or like object normally
4 disposed in a substantially vertical orientation as shown in
5 Figure 25. The mount 142 is preferably in the form of a u-
6 shaped clamp and includes two outwardly extending connecting
7 brackets 146 onto which one or more elastic resistance elements
8 72, 73, etc. may be removably secured. The clamps 142 are
9 structured to be supported in overlying engaging relation to an
upper peripheral edge 150' of the supporting structure or door
10 150. Conversely, the mount 144 is preferably in the form of an
L-shaped bracket structured to be disposed in confronting
11 engagement with one surface 151 of the supporting structure or
door 150, adjacent to the lower peripheral edge 150". Each of
12 the one or more L-shaped mounts 144 includes a flexible material
13 connector or attachment member 148 which may be disposed to
14 extend beneath the lower peripheral edge 160" such that the
15 outer end thereof 149 is removably attached to one or more of
16 the elastic resistance elements 72, 73, etc. The opposite end
17 of the resistance elements 72, and 73 may be removably connected
18 to the gripping bar 107' which also may define a part of the
19 aforementioned gripping assembly as shown and is represented in
20 Figure 26. In order to prevent damage to the supporting
21 structure 150, appropriately positioned pads or cushions 160 may
22 be disposed between the u-shaped clamp or mount 142 and the
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1 upper peripheral edge 150' of the supporting structure or door
2 150. Other structural components associated with the exercise
3 assembly of the embodiment of Figures 25 through 31 include a
4 body restraining portion 162 in the form of a strap, belt, etc.,
5 which is designed to removably surround and engage the hands,
6 ankles, feet or other portions of the user's body. In addition
7 a pad or cushion 164 may be utilized to overly the skin or
8 surface area of the portion of the user's body engaged by the
9 restraining strap 162. Also, one or more handles 166 each having
10 a connector 90" may be used to engage the free ends of the
11 various resistance elements 72 or 73 instead of the gripping bar
12 107'. Finally, a head cushion 54' may be utilized to add
13 comfort and also possibly protect the user's head and/or neck
14 area and may be applied in a position similar to that shown in
15 Figure 17, dependent primarily on exercise being performed by
16 the user.

17 It is again emphasized that regardless of which of the
18 embodiments of the exercise assembly, as shown in Figures 1
19 through 31, are utilized, substantially a full range of
20 exercises may be performed, wherein such exercises include, but
21 are not limited to, leg extensions, leg presses, military press,
22 rowing, arm curl, bench press/dip, pull ups, sit ups, hamstring
23 flexes and others.

24 Since many modifications, variations and changes in detail
25 can be made to the described preferred embodiment of the

1 invention, it is intended that all matters in the foregoing
2 description and shown in the accompanying drawings be
3 interpreted as illustrative and not in a limiting sense. Thus,
4 the scope of the invention should be determined by the appended
5 claims and their legal equivalents.

6 Now that the invention has been described,